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(56) Documents Cited

GB 2214678 A EP 0605743 A WO 94/04398 A
FR 002701908 A US 5611875 A US 5307846 A
US 4694409 A US 4456038 A

(58) Field of Search

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(54) Abstract Title

Electronic tyre inflator

(57) The device adjusts the pressures supplied to date or deflate tyres using individual tyre pressure settings stored on a magnetic card. The actual pressure being applied is continuously displayed on a liquid crystal display. One or more tyres can be inflated simultaneously, a hookup harness for multiple inflation being shown in figure 5. The system can regulate pressures to +/- 0.5% and can identify leaking tyres and raise an alarm to alert the operator of such.

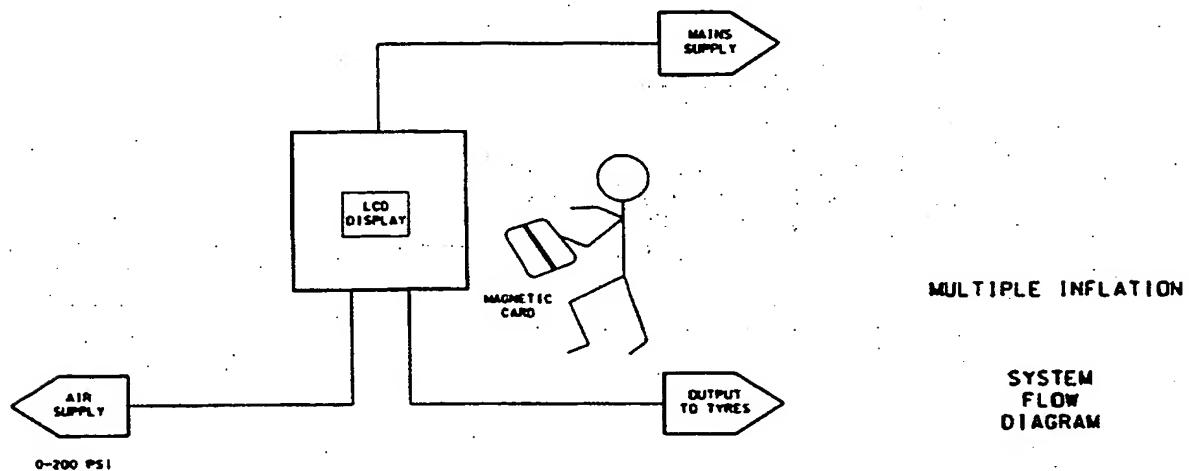
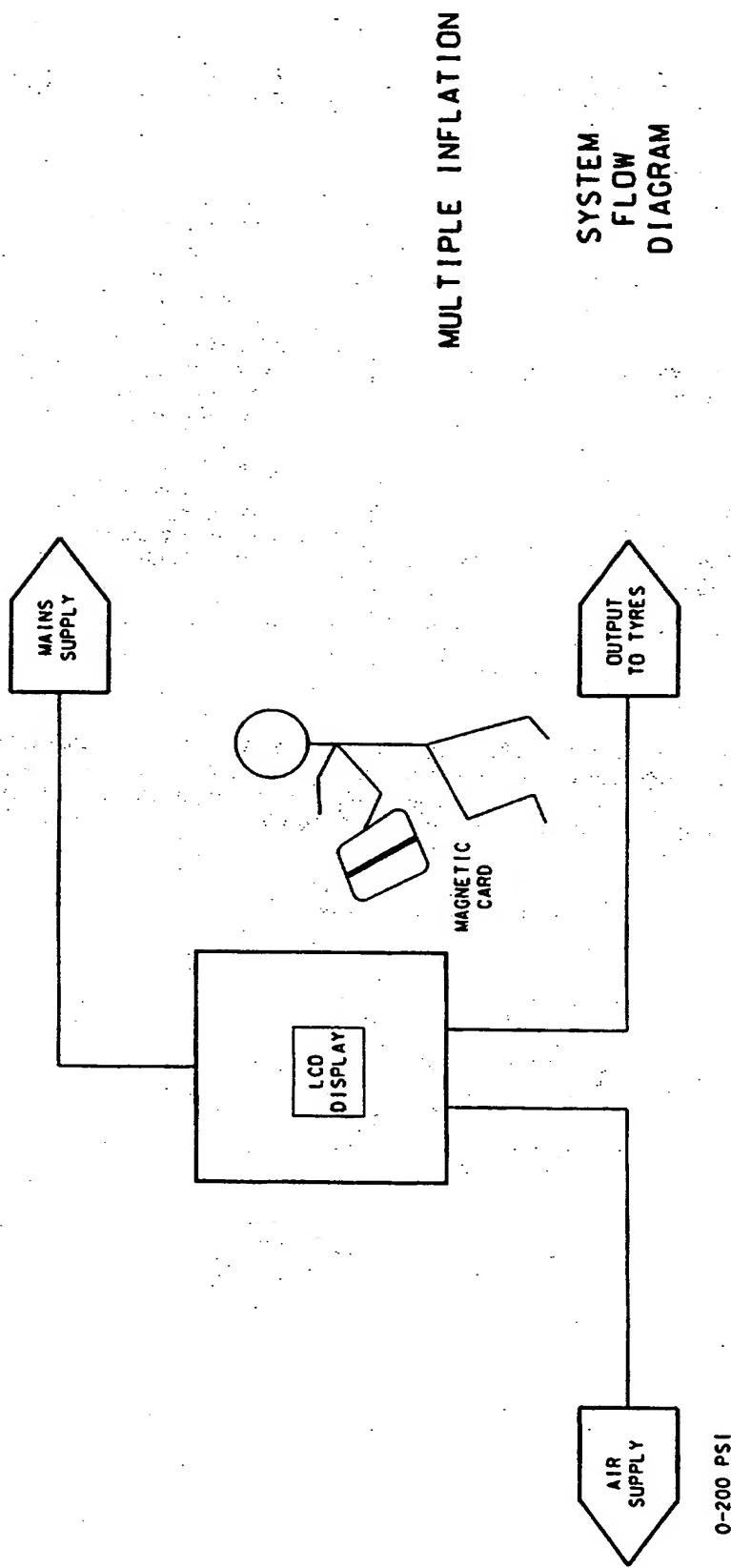


FIGURE 1

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FIGURE 1



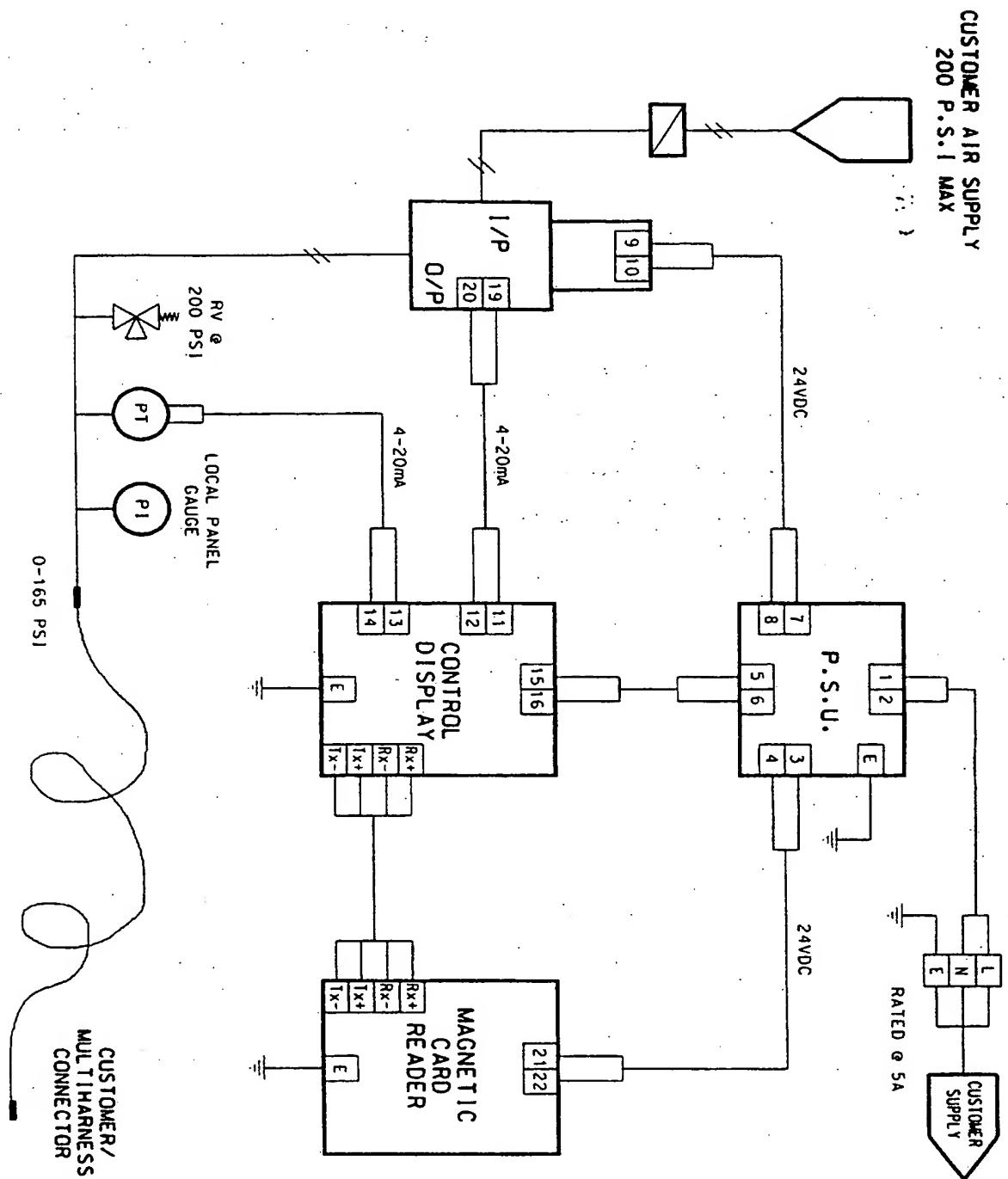


FIGURE 2

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TECHNICAL SPECIFICATION

Fig 3

Range 0 - 165 psi

Response Time - 8 bar/second (1 litre load)

Max Capacity - 600 litres/minute

Relief Capacity - 300 litres/minute

Supply Pressure - 200 psig

Supply Voltage - 240v a/c 50hz

110v a/c 50hz

24v d.c (optional)

44

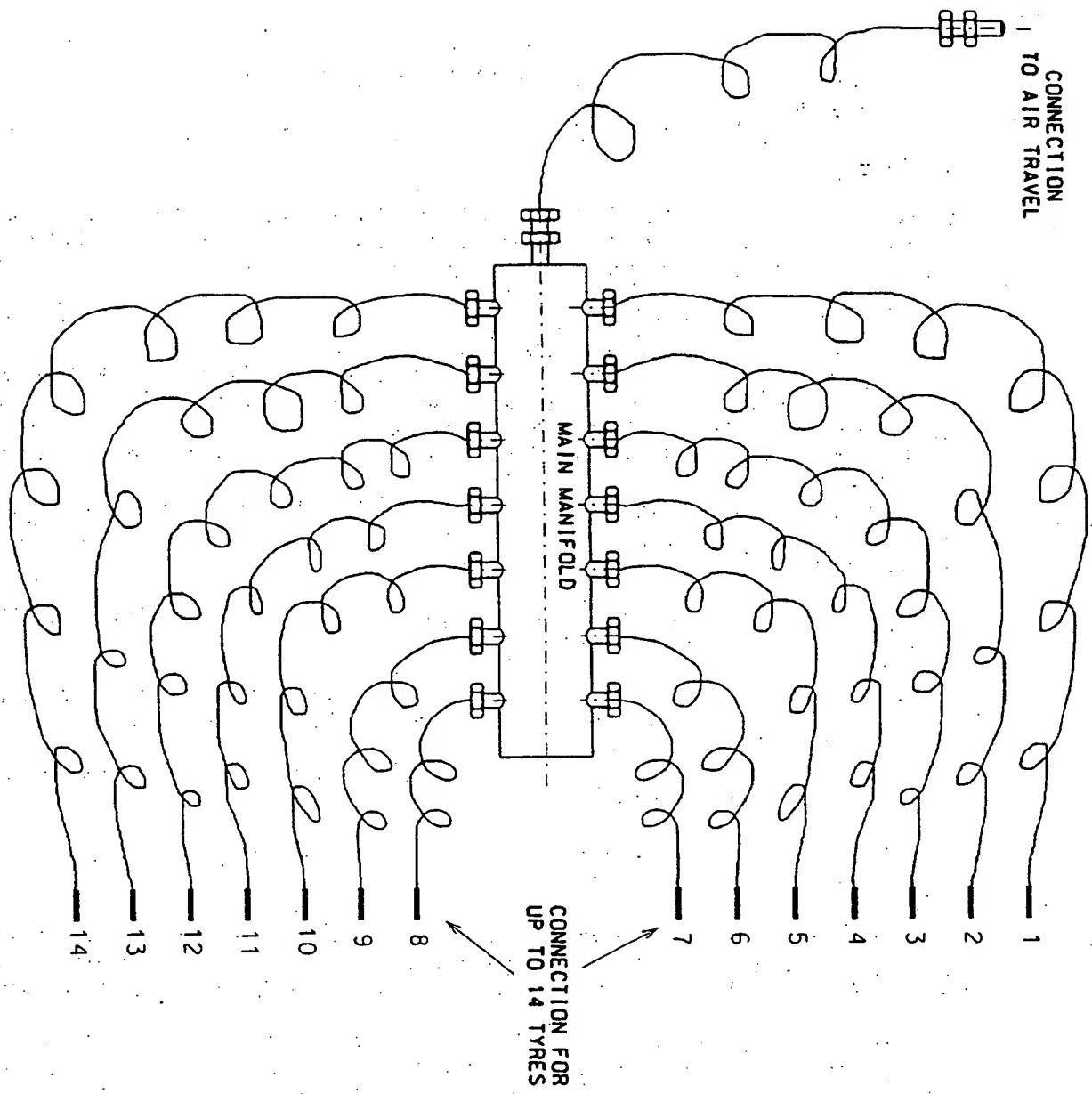


FIGURE 4

ELECTRONIC TYRE INFLATER

This invention relates to an electronic based, vehicle tyre inflator.

Tyre inflators are typically mechanical items utilising moving parts, due to the hard handling they receive they damage easily, become inaccurate and unreliable.

This invention utilises an electronic regulator to adjust the pressures required to inflate/deflate tyres across a range of values from 0 to 160 PSIG. The invention uses a magnetic code to store individual tyre pressure settings. When inserted into the device, the magnetic card selects the values required, the regulator then adjusts the pressure to the data selected.

A specific embodiment of the invention will now be described by way of example with reference to the accompanying drawings in which:-

- Figure 1 Shows a process flow diagram demonstrating the essential elements.
- Figure 2 Shows a schematic wiring diagram demonstrating the connection details of the system.
- Figure 3 Details the technical specifications of the system.
- Figure 4 Pneumatic multi-tyre hook-up harness.

Referring to the drawing, Fig 1, the system comprises a number of key components that connected in such a way form a system to allow for fully automatic setting of vehicle tyre pressures.

In order to operate the system, a magnetic card is offered upto the magnetic card reader, the code identifying your vehicle is then accessed from the TYRE PRESSURE DATA BASE. The actual values of pressures are then transmitted to an electronic display and control unit which informs the operator of the pressure value to be set and the tyre which is to be inflated.

An electronic signal is then 'transmitted' to the electronic regulator which transforms the electronic value into a pneumatic value, a continuous comparison procedure then adjusts the output pressure to with in +/- 0.5% of the required value. Whilst this process takes place the actual pressure value is continuously displayed as is an instruction, displayed in alpha-numeric characters on a liquid crystal display, which informs the operator of the status of the pressure value and the tyre which currently is under inflation.

CLAIMS

- 1 An accurate electronic tyre pressure regulator in the form of a system made up of components identified in Fig 1 and Fig 2.
- 2 A electronic tyre pressure regulator, capable, by means of utilising the optional hook up harness identified in Fig 4 of inflating multiple tyres simultaneously, as installed on commercial transport vehicles fixed and trailer type.
- 3 A electronic tyre inflator capable of being set to manual, enabling the operator to manually adjust the pressure to any value by means of hand eye control of the regulator override features.
- 4 A fully automatic tyre inflation system which negates the requirements for operator input to "look up and select pressures" for a particular vehicle type. Automated by using a magnetic card to select a vehicles set up data, the system can adjust to accommodate any pressure values currently used on vehicles to date.
- 5 A tyre inflation system, which due to its automatic, self checking, continuous comparison technology can be left un supervised to allow completely safe inflation of one or more tyres simultaneously.
- 6 A tyre inflation system substantially detailed in Fig 1, 2, 3 and 4.
- 7 The tyre inflator can at the end of each inflation sequence identify leaking tyres and can raise an alarm to identify to the operator the tyre with the faulty seal.



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Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Int Cl (Ed.6): B60S 5/04.

Other: ONLINE: WPI.

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2214678 A (Jackson)	4, 5.
X	EP 0605743 A (Benimeli)	2, 4, 5.
X	WO 94/04398 A (Ackermann)	4, 5.
X	US 5611875 (Bachhuber)	4, 5, 7.
Y	US 5307846 (Heinemann)	2, 6.
X	US 4694409 (Monorail, Inc.)	3
X	US 4456038 (Hennessey Industries, Inc.)	3
X, Y	FR 2701908 (Annecy Electronique) - see particularly figure 2c and page 4 paragraph 3.	X: 1, 3-5, Y: 2, 6.

- X Document indicating lack of novelty or inventive step
Y Document indicating lack of inventive step if combined with one or more other documents of same category.
& Member of the same patent family

- A Document indicating technological background and/or state of the art.
P Document published on or after the declared priority date but before the filing date of this invention.
E Patent document published on or after, but with priority date earlier than, the filing date of this application.